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groups of sensory cells are found on all regions of the body except the anterior end. Well-defined clusters are found only on the prostomium and first few segments.

G. H. P.

**The Eyes of the Polyphemidæ.**—The eyes of the family of minute crustaceans, the Polyphemidæ, have been the subject of careful investigation by Dr. O. Miltz.<sup>1</sup> The eyes are compound, and each retinal element or ommatidium is composed of two distal cells, forming part of the corneal hypodermis, of five cells forming the cone, of two supporting cells, and of a group of five reticular cells. The nerve fibres pass centrally from the reticular cells. The development, physiology, and biological significance of the eyes are considered.

G. H. P.

**Zoölogical Notes.**—An Uncinaria from a panther that died in the Königsberg Zoo has furnished Cohn (*Arch. de Parasitol.*, Vol. II, No. 1, pp. 5–22, 1899) with some important data on the life history of these forms and the injuries they produce. An introductory discussion clears up the synonymy and shows that three good species occur in the Felidæ. The form studied, *U. perniciosa*, was found abundantly in small, dark-colored nodules in the wall of the small intestine, each nodule containing a number of individuals, among which the females were more numerous. A histological study of these nodules showed that they always lay in the submucosa, which was enormously thickened at that point at the expense of the circular muscle layer, and that each opened into the intestinal lumen by a small pore at which the epithelium was inturned. Larvæ much like those of *U. duodenalis*, recently described by Looss, were numerous in the intestinal mucus, and a single older form was met between the villi. In the nodules, on the other hand, only sexually mature individuals were found, together with the eggs. Cohn outlines the life history as follows: There is no secondary host, but the larvæ are brought directly into the intestine of the primary host, and when they have reached a certain period of growth they invade the wall of the canal and cause there the growth of nodules. The results of other investigators are interpreted in the light of this work which conforms, moreover, to the conjecture of Railliet in the case of *Sclerostoma equinum*.

<sup>1</sup> Miltz, O. Das Auge der Polyphemiden, *Zoologica*, Bd. xi (1899), Lieferung 4, pp. 1–60, Taf. I–IV.

A new pelagic nemertine is described by Woodworth (*Bull. Mus. Comp. Zoöl.*, Vol. XXXV, No. 1, July, 1899). It was taken by the *Albatross* while trawling at a depth of 500 to 2000 fathoms in the Pacific Ocean, and differs from the forms obtained by the *Challenger* expedition in several important particulars which justify its inclusion in a new genus — *Planktonemertes*.

Metagenesis in the Coccidia and Hæmosporidia is the subject of a recent important résumé by Schaudinn (*Zool. Centralblatt*, Vol. VI, No. 22, pp. 765-783, October, 1899). The article is accompanied by an extensive bibliography of the subject.

Notes on some exotic species of ectoparasitic trematodes, recently published by S. Goto (*Journ. Sci. Coll. Imp. Univ.*, Tokyo, Japan, Vol. XII, No. 4, pp. 263-295, Pls. XX, XXI, 1899), include studies made in this country, chiefly at the Newport Marine Laboratory. A dozen species, seven of which are new, are described with care, numerous points in the synonymy cleared up, and many details of anatomical structure worked out. One new genus, *Dionchus*, was discovered which unites characters of the *Gyrodactylidæ* and *Monocotylidæ*. American students are fortunate in having such satisfactory descriptions and illustrations of native forms as those given here.

C. T. Simpson has given in the *Bulletin of the United States Fish Commission* for 1898 a readable and interesting account of the structure, habits, enemies, and commercial value of our fresh-water mussels.

No. 5 of the third volume of the *American Journal of Physiology* contains the following articles: "A Modified Soxhlet Apparatus for the Extraction of Fat from Liquids," by A. E. Taylor; "A New Form of Piston Recorder and Some of the Changes of the Volume of the Finger which it Records," by W. P. Lombard and W. B. Pillsbury; and "Secondary Rhythms of the Normal Human Heart," by W. P. Lombard and W. B. Pillsbury.

The first number of the *Biological Bulletin*, edited by the director and members of the staff of the Marine Biological Laboratory at Woods Holl, Mass., has appeared, and contains the following articles: "Some Relations between Nervous Tissue and Glandular Tissue in the Tunicata," by M. M. Metcalf; "Regeneration of Tissue composed of Parts of Two Species," by T. H. Morgan; "*Dinophilus gardineri*

(sp. nov.)," by A. Moore; "Some Muscinæ of North America," by G. de N. Hough; and "Experimental Studies upon Hydromedusæ," by C. W. Hargitt. Under the head of "Bibliography and Publication" is printed the second report of the English committee on these subjects.

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## BOTANY.

**The Last Contribution from the U. S. National Herbarium**<sup>1</sup> is one of the largest and best of this valuable series. It is chiefly written by Dr. J. N. Rose, and is largely devoted to the Mexican flora. The more noteworthy features are: (1) a proposed rearrangement of the suborder Agaveæ, in which eight genera are recognized, *Manfreda* is kept distinct from *Agave*, *Bravoa* is reduced to *Polyanthes*, and a new genus, *Pseudobravoa*, is established; (2) a synopsis of the small but difficult leguminous genus *Nissolia*, in which thirteen species are recognized and figured; (3) partial keys to the Mexican and Central American species of *Zanthoxylum*, *Turnera*, and *Clitoria*; (4) a considerable series of critical notes on the Malvaceæ, in which *Anoda incarnata* H. B. K. and a nearly related new species are united in the reestablished and undoubtedly valid genus *Periptera*; (5) a synopsis of the species of *Waltheria* and *Cedrela* ranging north of the Isthmus of Panama; (6) a key to the Mexican and Central American species of *Thalictrum*; (7) the characterization of many new and capitally illustrated Mexican species of various orders; (8) the description of *Treleasea*, a new genus of Commelynaceæ, with three species ranging from Texas southward into Mexico; (9) notes on useful plants of Mexico.

The last subject is treated under the following heads: cereals and vegetables, fruits, beverage plants, seasoning and flavoring plants, medicinal plants, soap plants, tanning and dye plants, fibre plants, brush and broom plants, fence and hedge plants. The illustrations, chiefly half-tones, are numerous, clear, and well chosen.

Regarding the systematic part of Dr. Rose's work, it may be said that it bears internal evidence of great care and good judgment. The copious and painstaking citation of literature and synonymy testifies to the excellence of the present bibliographical methods in the botanical work of the department of agriculture under Mr. Coville's direction. The economic portions of the paper have

<sup>1</sup> Vol. v, No. 4, pp. 145-259, t. 18-64; issued Oct. 31, 1899.